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QC ABSTRACT

Nameof Work: De-Siliting and Re-Setting of Drain and Re-Asphalting to M S Ramaiah Road and Other Roads Dasrahalli Ward No 15

SI. No.	Item	Quantity As Per BOQ	Required No's of testes	Actual No's of testes	Testes	Frequency
1	WMM	221.63 Cum	-	-	-	-
		Gradation	3	3	-	-
		AIV	2	2	-	-
		Shape Test	2	2	-	-
		Atterberg Limits	3	3	-	-
2	DBM	73.88 Cum	-	-	-	-
		Quality of Binder	1	1	-	-
		AIV	1	1	-	-
		Shape Test	1	1	-	-
		Gradation	1	1	-	-
		Specific Gravity	1	1	-	-
		Stability of Mix	2	2	-	-
		Bitumen content	2	2	-	-
3	BC	197.95 Cum	-	-	-	-
		Quality of Binder	1	1	-	-
		AIV	1	1	-	-
		Shape Test	1	1	-	-
		Gradation	1	1	-	-
		Specific Gravity	1	1	-	-
		Stability of Mix	4	4	-	-
		Bitumen content	4	4	-	-
4	100mm Slab	221.63 Sqm	1	1	Concrete Core Compressive, Strength	-

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಡಿ ದಾಸರಹಳ್ಳಿ ಉಪ ವಿಭಾಗ
ಬಾಗಲಗುಂಟೆ. ಜಿ ಕ ಎಂ ಪಿ
ಬೆಂಗಳೂರು

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Job No.: CACE/BBMP/NH/W No.15/2022-2023 Date: 06.07.2022

TEST REPORT ON CEMENT

Client :Assistant Executive Engineer, T Dasarahalli Sub Division, BBMP, Bangalore.

Agency : Sri. Nagaraja Hosur, Contractor, Bangalore.

Name of Work : De-Siliting and Re-Setting of Drain and Re-Asphalting to M S Ramaiah Road and Other Roads Dasrahalli Ward No 15

Sample ID: : Cement (Birla Super 53 grade OPC)

Sample Supplied by: : AGENCY

Date of Manufacture: : June - 2022

Date of Testing 04.07.2022 to 06.07.2022

Sl.No	Descriptions	Test Method as per IS	Test Result	Requirements as per IS: 269:2015
1	a) Initial Setting Time	IS-4031 (Part - 5):1988(RA 2014)	130 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-4031 (Part - 5):1988(RA 2014)	340 Minutes	Not More than 600 Minutes
2	Soundness	IS-4031 (Part 3) :1988 (RA 2014) by the Le-Chatelier method	1 mm	Not more than 10 mm
3	Standard Consistency	IS-4031 (Part -4)	30.00%	-

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ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ಬೆಂಗಳೂರು-560073.

For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

No. 01, Satvika Nilaya, Opp. Widia Poorna Prajna School,
Ramaiah Layout, Nagasandra, Bangalore - 560 073.
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Job No.: CACE/BBMP/NH/W No.15/2022-2023 Date : 04.07.2022

TEST REPORT ON FINE AGGREGATES (SAND)

Client :**Assistant Executive Engineer, T Dasarahalli Sub Division, BBMP, Bangalore.**

Agency : **Sri. Nagaraja Hosur, Contractor, Bangalore.**

Name of Work : De-Siliting and Re-Setting of Drain and Re-Asphalting to M S Ramaiah Road and Other Roads Dasrahalli Ward No 15

Date of Testing : 04.07.2022

IS Code : IS 383:2016

: IS 2386 (Part 1):1963(RA 2011)

Material : Sand Total Wt. of Aggregates in gms **1000**

Is Sieve Size in mm	Weight Retained (gm)	Retained Weight in %	Cumulative Retained Weight in %	Cumulative Weight Passing in %	Spec.Limits For Zone-II
10	0	0	0	100	100
4.75	89	8.90	8.90	91.1	90-100
2.36	126	12.60	21.50	78.5	75-100
1.18	182	18.20	39.70	60.3	55-90
600 Micron	165	16.50	56.20	43.8	35-59
300 Micron	256	25.60	81.80	18.2	8-30
150 Micron	138	13.80	95.60	4.4	0-10

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Job No.: CACE/BBMP/NH/W No.15/2022-2023

Date : 04.07.2022

TEST REPORT ON FINE AGGREGATES (SAND)
IS 2116-1980

Client :**Assistant Executive Engineer,** T Dasarahalli Sub Division, BBMP, Bangalore.

Agency : **Sri. Nagaraja Hosur,** Contractor, Bangalore.

Name of Work : De-Siliting and Re-Setting of Drain and Re-Asphalting to M S Ramaiah Road and Other Roads Dasrahalli Ward No 15

Date of Testing : 04.07.2022

Material : Sand - Masonry

Total wt. of aggregates in gms = **1000**

Is Sieve Size in mm	Weight Retained (gm)	Retained Weight in %	Cumulative Retained Weight in %	Cumulative Weight Passing in %	Spec.Limits as per IS 2116-1980
4.75	0	0.00	0.00	100.0	100
2.36	14	1.40	1.40	98.6	90-100
1.18	38	3.80	5.20	94.8	70-100
600 Micron	84	8.40	13.60	86.4	40-100
300 Micron	256	25.60	39.20	60.8	5-70
150 Micron	489	48.90	88.10	11.9	0-15

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Job No.: CACE/BBMP/NH/W No.15/2022-2023

Date: 08.07.2022

PRECAST SLAB 100mm Thick(CORE) TEST REPORT

Client : **:Assistant Executive Engineer, T Dasarahalli Sub Division, BBMP, Bangalore.**

Contractor : **: Sri. Nagaraja Hosur, Contractor, Bangalore.**

Name of Work : : De-Siliting and Re-Setting of Drain and Re-Asphalting to M S Ramaiah Road and Other Roads Dasrahalli Ward No 15

No.of Sample Tested : 03

Date of Testing : 08.07.2022

Techinical Reference : IS:516-1959 (Reaffirmed 1999), SP-24:1983.

Grade of Concrete : M20

Sl. No.	Dia of Core D (mm)	Height of Core H (mm)	Core Wt (Kg)	Density of Core (kg / m^3)	H / D	Correction factor (Based on H/D)	Failure Load (kN)	Core Strength (N/mm^2)	Correction Factor for the Dia. (Strength of the Core x 1.08)	Corrected Cylinder Compressive Strength (N/mm^2)	Equivalent Cube Compressive Strength (N/mm^2)
1	50.00	100.00	0.375	1909.86	2.00	1.000	28.12	14.32	15.47	15.47	19.33
2	50.00	101.00	0.389	1961.55	2.02	1.002	29.57	15.06	16.26	16.30	20.37
3	50.00	102.00	0.399	1992.25	2.04	1.004	30.15	15.36	16.58	16.66	20.82

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Job No.: CACE/BBMP/NH/W No.15/2022-2023 Date :13.07.2022

ATTERBERG LIMITS TEST FOR WMM

Client :**Assistant Executive Engineer, T Dasarahalli Sub Division, BBMP, Bangalore.**

Agency : **Sri. Nagaraja Hosur, Contractor, Bangalore.**

Name of Work : De-Siliting and Re-Setting of Drain and Re-Asphalting to M S Ramaiah Road and Other Roads Dasrahalli Ward No 15

IS Code: : IS 2720(Part 5):1985

Date of Testing : 11.07.2022 to 13.07.2022

Material Type : Wet Mix Macadam

Sl. No.	Particulars	Test Results	Requirement as per MORTH 5th edition Cl.406.2.1.2
1	Liquid Limit	19.50	-
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

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Date of Testing : 11.07.2022 to 13.07.2022

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Sl. No.	Particulars	Test Results	Requirement as per MORTH 5th edition Cl.406.2.1.2
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2	Plasticity Index, %	Non Plastic	6.0% Maximum.

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Date of Testing : 11.07.2022 to 13.07.2022

Material Type : Wet Mix Macadam

Sl. No.	Particulars	Test Results	Requirement as per MORTH 5th edition Cl.406.2.1.2
1	Liquid Limit	19.00	-
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

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Job No.: CACE/BBMP/NH/W No.15/2022-2023

Date: 11.07.2022

Aggregate Impact Value

Client	**:Assistant Executive Engineer, T Dasarahalli Sub Division, BBMP, Bangalore.**
Agency	**: Sri. Nagaraja Hosur, Contractor, Bangalore.**
Name of the Work	: De-Siliting and Re-Setting of Drain and Re-Asphalting to M S Ramaiah Road and Other Roads Dasrahalli Ward No 15
IS Code	IS 2386 (Part 4):1963(RA 2011)
Type of Mix	Wet Mix macadam
Date of Testing	11.07.2022

Sl No.	Details	Test No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	380	382	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	86	88	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	294	294	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	22.63	23.04	22.83

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%(As per MORTH Specication table 400.12)

Note:

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Date: 11.07.2022

Aggregate Impact Value

Client	**:Assistant Executive Engineer, T Dasarahalli Sub Division, BBMP, Bangalore.**
Agency	**: Sri. Nagaraja Hosur, Contractor, Bangalore.**
Name of the Work	: De-Siliting and Re-Setting of Drain and Re-Asphalting to M S Ramaiah Road and Other Roads Dasrahalli Ward No 15
IS Code	IS 2386 (Part 4):1963(RA 2011)
Type of Mix	Wet Mix macadam
Date of Testing	11.07.2022

Sl No.	Details	Test No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	381	382	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	86	88	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	295	294	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	22.57	23.04	22.80

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%(As per MORTH Specication table 400.12)

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Job No.: CACE/BBMP/NH/W No.15/2022-2023

Date :11.07.2022

GRADATION FOR WMM

Client :Assistant Executive Engineer, T Dasarahalli Sub Division, BBMP, Bangalore.

Agency : Sri. Nagaraja Hosur, Contractor, Bangalore.

Name of Work : De-Siliting and Re-Setting of Drain and Re-Asphalting to M S Ramaiah Road and Other Roads Dasrahalli Ward No 15

IS Code: : IS 2386 (Part 1):1963(RA 2011)

Date of Testing :11.07.2022

Material Type : Wet Mix Macadam

Oven Dry.Wt, gran 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	184	184	1.8	98.2	95-100
22.4	2536	2720	27.2	72.8	60-80
11.2	2150	4870	48.7	51.3	40-60
4.75	1845	6715	67.2	32.9	25-40
2.36	1189	7904	79.0	21.0	15-30
0.600	582	8486	84.9	15.1	8-22
0.075	1232	9718	97.2	2.8	0-5

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GRADATION FOR WMM

Client :**Assistant Executive Engineer, T Dasarahalli Sub Division, BBMP, Bangalore.**

Agency : **Sri. Nagaraja Hosur, Contractor, Bangalore.**

Name of Work : De-Siliting and Re-Setting of Drain and Re-Asphalting to M S Ramaiah Road and Other Roads Dasrahalli Ward No 15

IS Code: : IS 2386 (Part 1):1963(RA 2011)

Date of Testing :11.07.2022

Material Type : Wet Mix Macadam

Oven Dry.Wt, gran 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	198	198	2.0	98.0	95-100
22.4	2530	2728	27.3	72.7	60-80
11.2	2165	4893	48.9	51.1	40-60
4.75	1840	6733	67.3	32.7	25-40
2.36	1180	7913	79.1	20.9	15-30
0.600	626	8539	85.4	14.6	8-22
0.075	1236	9775	97.8	2.3	0-5

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Date :11.07.2022

GRADATION FOR WMM

Client :**Assistant Executive Engineer, T Dasarahalli Sub Division, BBMP, Bangalore.**

Agency : **Sri. Nagaraja Hosur, Contractor, Bangalore.**

Name of Work : De-Siliting and Re-Setting of Drain and Re-Asphalting to M S Ramaiah Road and Other Roads Dasrahalli Ward No 15

IS Code: : IS 2386 (Part 1):1963(RA 2011)

Date of Testing :11.07.2022

Material Type : Wet Mix Macadam

Oven Dry.Wt, gran 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	185	185	1.9	98.2	95-100
22.4	2537	2722	27.2	72.8	60-80
11.2	2155	4877	48.8	51.2	40-60
4.75	1851	6728	67.3	32.7	25-40
2.36	1190	7918	79.2	20.8	15-30
0.600	583	8501	85.0	15.0	8-22
0.075	1230	9731	97.3	2.7	0-5

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For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

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Job No.: CACE/BBMP/NH/W No.15/2022-2023 Date : 11.07.2022

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**:Assistant Executive Engineer, T Dasarahalli Sub Division, BBMP, Bangalore.**
Agency	**: Sri. Nagaraja Hosur, Contractor, Bangalore.**
Name of Work	: De-Siliting and Re-Setting of Drain and Re-Asphalting to M S Ramaiah Road and Other Roads Dasrahalli Ward No 15
BIS code:	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	11.07.2022

Sl no	Test	1	2	Requirements as per MORTH 5th edition table no 400.12
1	Flakiness Index %	11.20	11.50	Combined Flakiness & Elongation index Max 35%
2	Elongation Index %	12.70	13.10	
	Combined Flakiness & Elongation index	23.90	24.60	

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Job No.: CACE/BBMP/NH/W No.15/2022-2023

Date : 11.07.2022

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	:Assistant Executive Engineer, T Dasarahalli Sub Division, BBMP, Bangalore.
Agency	: Sri. Nagaraja Hosur, Contractor, Bangalore.
Name of Work	: De-Siliting and Re-Setting of Drain and Re-Asphalting to M S Ramaiah Road and Other Roads Dasrahalli Ward No 15
BIS code:	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	11.07.2022

Sl no	Test	1	2	Requirements as per MORTH 5th edition table no 400.12
1	Flakiness Index %	11.90	12.10	Combined Flakiness & Elongation index Max 35%
2	Elongation Index %	13.20	13.60	
	Combined Flakiness & Elongation index	25.10	25.70	

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JobNo: CACE/BBMP/NH/W No.15/2022-2023 Date : 18.07.2022

TEST RESULTS OF AGGREGATE SHAPE TEST (Flakiness & Elongation)

Client :Assistant Executive Engineer, T Dasarahalli Sub Division, BBMP, Bangalore.

Agency : Sri. Nagaraja Hosur, Contractor, Bangalore.

Name of work : De-Siliting and Re-Setting of Drain and Re-Asphalting to M S Ramaiah Road and Other Roads Dasrahalli Ward No 15

BIS Code : IS 2386 Part (1):1963

Date of Test : 18.07.2022

Type of Mix : Dense Graded Bituminous Macadam

Sl.No.	Flakiness Index Value(%)	Elongation Index Value(%)	Total(Combined Flakiness and Elongation)(%)	Requirements
1	12.20	13.60	25.80	Maximum allowable Combined Flakiness and Elongation Indices for Dense Graded Bituminous Macadam is 35% as per Table 500.8 MORTH Specification.
2	12.60	13.90	26.50	

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Job No.: CACE/BBMP/NH/W No.15/2022-2023

Date: 18.07.2022

Aggregate Gradation Test

Client	**:Assistant Executive Engineer, T Dasarahalli Sub Division, BBMP, Bangalore.**
Agency	**: Sri. Nagaraja Hosur, Contractor, Bangalore.**
Name of the Work	: De-Siliting and Re-Setting of Drain and Re-Asphalting to M S Ramaiah Road and Other Roads Dasrahalli Ward No 15
BIS Code	IS 2386(Part 1):1963(RA 2011)
Sample I / D	Hot mix Plant, Bangalore.
Type of Mix	Dense Graded Bituminous Macadam
Date of Testing	18.07.2022

Total Weight of Sample: **10000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table 500.10	Remarks
37.50	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
26.50	715	7.2	7.15	92.85	90 - 100	
19.00	1265	12.7	19.80	80.20	71 - 95	
13.20	1385	13.9	33.65	66.35	56 - 80	
4.75	2514	25.1	58.79	41.21	38 - 54	
2.36	1097	11.0	69.76	30.24	28 - 42	
0.300	1319	13.2	82.95	17.05	7 - 21	
0.075	1156	11.6	94.51	5.49	2 - 8	

Total Weight of Sample: **10000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table 500.10	Remarks
37.5	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
26.5	685	6.9	6.85	93.15	90 - 100	
19	1415	14.2	21.00	79.00	71 - 95	
13.2	1136	11.4	32.36	67.64	56 - 80	
4.75	2415	24.2	56.51	43.49	38 - 54	
2.360	1159	11.6	68.10	31.90	28 - 42	
0.300	1312	13.1	81.22	18.78	7 - 21	
0.075	1174	11.7	92.96	7.04	2 - 8	

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JobNo: CACE/BBMP/NH/W No.15/2022-2023 Date : 18.07.2022

TEST RESULTS OF AGGREGATE IMPACT VALUE

Client :Assistant Executive Engineer, T Dasarahalli Sub Division, BBMP, Bangalore.

Agency : Sri. Nagaraja Hosur, Contractor, Bangalore.

Name of work : De-Siliting and Re-Setting of Drain and Re-Asphalting to M S Ramaiah Road and Other Roads Dasrahalli Ward No 15

Source / Location : Hot Mix Plant, Bangalore

BIS Code : IS 2386 Part (4):1963

Type of Mix : Dense Graded Bituminous Macadam

Date of test : 18.07.2022

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W1 g	383	385	
2	Weight of agregate passing 2.36 mm sieve after the test = W2 g	87	89	
3	Weight of aggregate retained 2.36 mm sieve after the test = W3 g	296	296	
5	Aggregate Impact value = percent fines 100* (W2/W1) percent	22.72	23.12	**22.92**

Comments:

→ Maximum allowable Aggregate Impact value for Dense Graded Bituminous Macadam is 27% (Table 500-8 of MORTH specification)

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Job No.: CACE/BBMP/NH/W No.15/2022-2023

Date: 20.07.2022

Specific Gravity And Water Absorption Test

Client	**:Assistant Executive Engineer, T Dasarahalli Sub Division, BBMP, Bangalore.**
Agency	**: Sri. Nagaraja Hosur, Contractor, Bangalore.**
Name of the Work	: De-Siliting and Re-Setting of Drain and Re-Asphalting to M S Ramaiah Road and Other Roads Dasrahalli Ward No 15
BIS Code	IS 2386(Part 3):1963
Type of Mix	Dense Graded Bituminous Macadam
Date of Testing	18.07.2022 to 20.07.2022

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2020	2022	2023	
2	Weight of basket suspended in water	W_2 g	756	756	756	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1264	1266	1267	
4	Weight of saturated surface dry aggregate in air	W_3 g	2017	2016	2015	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	753	750	748	
6	Weight of oven dried aggregate	W_4 g	2007	2007	2005	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.665	2.676	2.680	2.674
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.701	2.709	2.717	2.709
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.50%	0.45%	0.50%	0.48%

Comments:

→ Maximum allowable Aggregate Water absorption value for Dense Graded Bituminous Macadam is 2.0%(As per MORTH table 500.8)

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Job No: CACE/BBMP/NH/W No.15/2022-2023 Date: **18.07.2022**

TEST REPORT ON PAVING BITUMEN

Client	:Assistant Executive Engineer, T Dasarahalli Sub Division, BBMP, Bangalore.
Agency	: Sri. Nagaraja Hosur, Contractor, Bangalore.
Name of work	: De-Siliting and Re-Setting of Drain and Re-Asphalting to M S Ramaiah Road and Other Roads Dasrahalli Ward No 15
BIS Code	IS 73:2013,IS 1203:1978, IS 1208:1978, IS 1205:1978, IS1448(P-69):1969
Date of Testing	**18.07.2022**
Type of Mix	**Dense Graded Bituminous Macadam , VG 30**
Source of Location	**Hot Mix Plant**

The results of the tests conducted on the bitumen sample using for Dense Graded Bituminous Macadam

Sl.No	Description	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 0C, 100gms, 5sec, 1/10 mm	52	Min 45
2	Softening point, 0C	50	Min 47
3	Ductility at 250C, cm	>100	Min40
4	Flash Point, 0C	282	Min 220

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